

REMARKS

This Amendment is in response to the Office Action mailed on November 24, 2010. Claim 1 is amended for clarity. No new matter is added. Claims 1-6 are pending.

§103 Rejections:

Claims 1 and 2 are rejected as being unpatentable over Utenick (US Patent No. 4,429,262) in view of Amrhein (US Patent No. 4,274,313). Claims 1-6 are rejected as being unpatentable over Utenick in view of Amrhein and further in view of Pini (US Patent No. 5,159,931). These rejections are traversed.

Claim 1 is directed to an ultrasonic probe that requires, among other features, an encoder correction ROM configured to store a previously measured swing scanning angle of the ultrasonic transducer with respect to each of a plurality of count values that are obtained by counting pulses from the rotary encoder over an entire swing range of the ultrasonic transducer. The encoder correction ROM also is configured to output the previously measured and stored swing scanning angle of the ultrasonic transducer in accordance with each of the count values. That is, the encoder correction ROM of claim 1 is configured to output the actual swing scanning angle of the ultrasonic transducer for each of the plurality of count values.

Both rejections rely on Amrhein for teaching that the count values are obtained by counting pulses from the rotary encoder over an entire swing range of the ultrasonic transducer, and configured to output the previously measured and stored swing scanning angle of the ultrasonic transducer.

However, Amrhein teaches that torque fluctuation or the like are controlled so as not to depend on the rotation angle of the motor 3 (see Abstract of Amrhein). The curve memory 32 provides correction data corresponding to an angle based on the premise that the count value of the encoder 2 is proportional to the angle (see column 11, line 7-column 12, line 50 of Amrhein). Different operating curves are used for different operating areas (see column 12, line 64-column 13, line 6 of Amrhein). Thus, instead of outputting a previously measured and stored angle for a particular count value, Amrhein teaches outputting an angle obtained by correcting a count value of the encoder 2 with

correction data from an optimum curve stored in the curve memory 32 in order to account for fluctuations or the like.

Also, even if the torque control of Amrhein can be performed more accurately by correcting the count value of the encoder 2 to the actual angle (which Amrhein does not teach or suggest), Amrhein would still output an angle obtained by correcting the count value of the encoder 2 with output correction data corresponding to the actual angle using an optimum curve stored in the curve memory 32.

Accordingly, Amrhein does not output the actual swing scanning angle of the ultrasonic transducer for each of the plurality of count values.

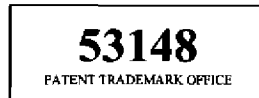
Thus, nowhere does Amrhein teach or suggest an encoder correction ROM configured to store a previously measured swing scanning angle of the ultrasonic transducer with respect to each of a plurality of count values that are obtained by counting pulses from the rotary encoder over an entire swing range of the ultrasonic transducer. Also, nowhere does Amrhein teach or suggest an encoder correction ROM configured to output the previously measured and stored swing scanning angle of the ultrasonic transducer in accordance with each of the count values.

Utenick and Pini do not overcome these deficiencies of Amrhein.

For at least these reasons claim 1 is not suggested by the combination of Utenick and Amrhein or the combination of Utenick, Amrhein and Pini, and should be allowed. Claims 2-6 depend from claim 1 and should be allowed for at least the same reasons.

Conclusion:

Applicants respectfully assert that the pending claims are in condition for allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 455-3804.



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